In the Claims

1. (Currently Amended) A superconducting fault current limiter (FCL) component having a superconductor in a non or low-inductive configuration with an axial length, a first end and a second end, the FCL component comprising:

a current-carrying coil made of electrically conductive material having a predetermined number of turns disposed closely adjacent the outer diameter of the superconductor, the coil enclosing the superconductor and extending beyond the first end and extending beyond the second end of the superconductor;

wherein the superconductor element is centered along the center axial line of the current-carrying coil; and

wherein the current-carrying coil is electrically coupled in series and in parallel with the superconductor, and is adapted to generate a trigger magnetic field with sufficient strength to cause the superconductor to transition from a superconducting state to a normal resistive state during current limiting.

2. (Original) The FCL component as recited in claim 1, wherein the FCL is a superconducting MFCL.

3. (Original) The FCL component as recited in claim 1, wherein the superconductor is made of high-temperature superconducting material.

4. (Original) The FCL component as recited in claim 3, wherein the high-temperature superconducting material is BSCCO.

5. (Original) The FCL component as recited in claim 3, wherein the high-temperature superconducting material is YBCO.

6. (Original) The FCL component as recited in claim 1, wherein the trigger magnetic field generated by the the current-carrying coil is essentially uniform within the region of the superconductor.

7. (Original) The FCL component as recited in claim 6, wherein the trigger magnetic field generated by the the current-carrying coil has a uniformity of within ±10% within the superconductor region.

8. (Original) The FCL component as recited in claim 1, wherein the superconductor is selected from the group consisting of a tube, rod, bar, plate, straight tape, straight wire, bifilar coil.

9. (Original) The FCL component as recited in claim 1, wherein the superconductor is a non or low-inductive configuration of a tubular-configured high temperature superconductor.

10. (Original) The FCL component as recited in claim 9, wherein the tubular-configured superconductor is at least one non or low-inductive superconductor, the superconductor selected from the group consisting of a tube, rod, bar, plate, straight tape, straight wire and bifilar coil.

11. (Canceled)

12. (Canceled)

13. (Currently Amended) The FCL component as recited in claim 1, wherein ~~the trigger coil~~ said current-carrying coil made of electrically conductive material having a predetermined number of turns is a foil made of electrically conductive material.

14. (Original) The FCL component as recited in claim 1, wherein the trigger coil is a solenoid.

15. (Currently Amended) A method of generating an essentially uniform trigger magnetic field in a fault current limiter having a low inductance superconductor, and having a magnetic field region, and having an outer coil axially disposed outside the superconductor, the method comprising the steps of:

generating a magnetic field from the trigger coil, wherein the magnetic field has sufficient strength to trigger the transition of the superconductor from a superconducting state to a normal resistive state, wherein the superconductor is enveloped by the magnetic field region; and

generating an additional magnetic field for a tubular-configured superconductor by a current-carrying wire or foil being disposed inside the inner diameter and along the center axial line of the superconductor, wherein the current carrying wire or foil has length extending beyond the ends of the superconductor;

wherein the trigger coil extends beyond the ends of the superconductor and wherein the superconductor is disposed along a center axial line of the trigger coil such that the superconductor is situated in the region where magnetic field generated by the trigger coil is essentially uniform.

16. (New) A superconducting fault current limiter (FCL) component having a tubular configured superconductor in a non or low-inductive configuration with an axial length, a first end and a second end, the FCL component comprising:

a current-carrying coil made of electrically conductive material having a predetermined number of turns disposed closely adjacent the outer diameter of the superconductor, the coil enclosing the superconductor and extending beyond the first end and extending beyond the second end of the superconductor;

a second current-carrying wire disposed along the center axial line of the tubular-configured superconductor is adapted to generate an additional magnetic field;

wherein the superconductor is centered along the center axial line of the current-carrying coil; and

wherein the current-carrying coil is adapted to generate a trigger magnetic field with sufficient strength to cause the superconductor to transition from a superconducting state to a normal resistive state during current limiting.

17. (New) The FCL component as recited in claim 16, wherein an additional magnetic field is generated by a current-carrying foil disposed along the center axial line and concentric with the tubular-configured superconductor.

The Examiner requred correction to the Specification on page 7, line 16. The Examiner has rejected claims 13 and 15 under 35 USC 112, second paragraph. The Examiner has further rejected claims 1-3,6,8-10, 13 and 14 under 35 USC 102(b) over US Patent No. 6,137,388, herinafter entitled "Saravolac." The Examiner has further rejected claims 4, 5 and 7 under 35 USC 103, over Saravolac. The Examiner has objected to claims 11 and 12 as being dependent upon a rejected base claim, but has indicated these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner has indicated that claim 15 would be allowable if rewritten or amended to overcome the rejection under 35 USC 112, second paragraph.

The Specification has been amended to recite possible governmental license rights in this invention. This invention was made, in part, under Contract No. DE-FC36-03G013033 awarded by the Department of Energy. A new paragraph inserted before paragraph [0001] has been added as required under 37 CFR 1.77. No new matter has been added to the Specification.

Paragraph [0006] of the Specification has been amended to refer to US Patent 6,664,875 rather than to US patent application 2003/0021074A1 (Serial No. 10/051,671) published on January 30, 2003, which has now issued as a patent. No new matter has been added to the Specification.

Paragraph [0025] of the Specification was amended as required by the Examiner to recite the invention with specificity. Page 7, line 16, which is part of paragraph [0025], was modified to clarify that superconductor 12 can be made of high temperature superconducting material, such as BSCCO or YBCO. No new material has been added to the Specification.

Saravolac does not teach or suggest the use of BSCCO or YBCO as a high temperature superconducting material. Nor does Saravolac teach or suggest the use of a second current carrying wire or foil disposed along the center axial line of a superconductor to generate an additional magnetic field. Saravolac teaches electrically coupling a magnetic field trigger mechanism in series with the superconducting element. Saravolac does not teach or suggest to electrically couple the magnetic field trigger mechanism in parallel and in series with the superconducting element. In fact, Saravolac teaches, in column 2 lines 57-60, "The uniform magnetic field parallel to the superconductor is generated by a winding through which an electrical current passes and which is *preferably* connected in series with the superconducting element." (emphasis added)

The Applicant has disclosed US Patent 6,664,875 as prior art assigned to the assignee of the present invention, and incorporated by reference, in which trigger mechanisms are electrically coupled in series and in parallel with the superconducting element. Applicant has modified claim 1 to recite the current-carrying coil electrically coupled in series and in parallel with the superconductor. Saravolac does not teach or suggest the coupling the current carrying coil coupled in series and in parallel. It is therefore, believed that amended claim 1 is now patentable over Saravolac. Since claims, 2-10, 13, 14 depend either directly or indirectly from amended claim 1, these claims are likewise patentable over Saravolac both under 35 USC 102 and 103.

Claims 11 and 12 have been rewritten in independent form reciting the limitations in base claims 1 and 9 as recited in newly added claims 16 and 17, thus obviating the objection of the Examiner. Claims 11 and 12 have been cancelled. It is believed that new claims 16 and 17 are now in condition for allowance.

Claims 13 and 15 have been amended to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. It is believed that amended claims 13 and 15 are now in condition for allowance.

It is therefore, now requested that the present patent application now be allowed.

Respectfully submitted,

Date: May 24, 2004

George L. Rideout, Jr.

George L. Rideout, Jr. Reg. No. 43,880

Law Office of George L Rideout, Jr.
4400 Abbott Grove Drive
Crestwood, KY 40014
Phone (502) 452-7792
Fax (502) 241-5039
Email: grideout@bellsouth.net